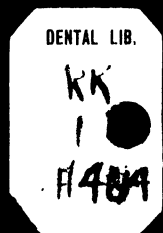
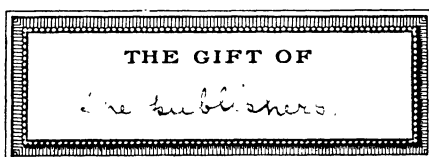
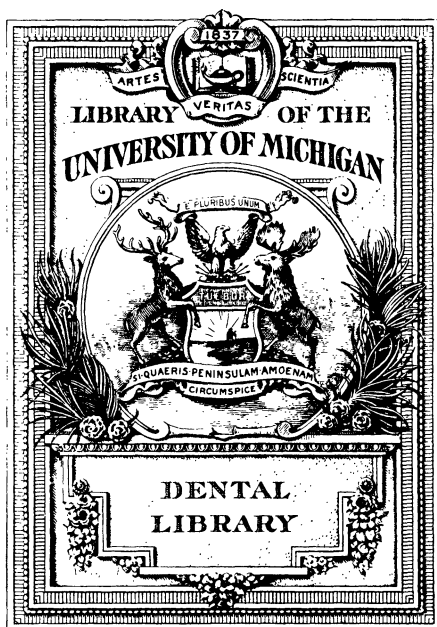


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ORIGINAL CONTRIBUTIONS

WHY, OF ALL MEN, THE PROFESSIONAL MAN SHOULD NOT SMOKE.

BY CHARLES G. PEASE, M. D., D. D. S., NEW YORK CITY.

Honesty and sincerity are two rare qualities today. Unless there are some traces of these qualities left in a man, there is nothing to appeal to in addressing him on such a subject as this.

There is no sensuous desire for poisonous, harmful narcotics, defiling the person, polluting the atmosphere, creating an obnoxious breath and bad smelling garments on the part of a man having internal resources and a sense of cleanliness, and right living.

A professional man is supposed to be of a class above the average individual in morals and intelligence, and in honesty and sincerity, but the urgent necessity for this paper indicates a lamentable, a degenerate condition where we should expect to find the finest type of manhood.

No man comes into closer contact with others than the dentist does in operating upon his patient. It should be the highest ideal, the loftiest purpose in the life of such a man to present to his patient a sweet, pure, wholesome person; with a normal nervous system, which is one with a steady hand, as against a tobacco poisoned (tea and coffee are also injurious), nervous system, which is one with an unsteady hand, in degree depending upon condition, but there is of necessity a deflection from the normal, no matter how small an amount of the poison is used.

Luther Burbank, the plant wizard of California, does not employ men who use tobacco, and says: "Even men who smoke one cigar a day I cannot entrust with some of my finer work."

Patients have rights, and they have the right to expect of a professional man the best there is in him. Of this right, the dentist

who smokes, deprives his patient. For the subtle influence of normality is lacking, the fineness and delicacy of touch is gone; departed with sweetness and purity and true manhood.

How a man can fall into such a slough; how he can wallow in such a vice, is beyond understanding. The picture of a human form sucking narcotic vapor from a weed is not pleasant to contemplate; surely not one that angels would delight to look upon.

If a professional man care nothing for himself, he will care nothing for the example he is setting the community or for the quality of the personality he brings into touch with his patient.

The poisonous character of tobacco and of tobacco fumes may be learned by every person interested in himself or in humanity, in the section on "tobacco" in the National Dispensatory.

William Lloyd Garrison said: "The apathy of the people is enough to make every statue to leap from its pedestal and to hasten the resurrection of the dead." Is it any wonder that an earnest man has so strongly expressed his keen recognition of the average person's indifference to the welfare of the human family?

At short intervals, we read in our daily papers the statement that our school children are degenerating. Has it not occurred to the reader that a cause lies in tobacco poisoned parents and tobacco poisoned atmosphere in the homes?

I recently asked a dentist who was leaving a building with a cigar protruding from his mouth, "If cattle and sheep should decide to accustom themselves to tobacco poison as man does, would they be valued for food or fancy? If they would have the same worth that unpoisoned animals have? If any fancier would select such a race of animals to breed pure stock from?" To all of which, the said dentist replied with emphasis: "No!" I then asked "Are you a married man?" He replied "Yes." I asked "Have you children?" He replied "Yes." I further asked, "Do you care less for your children than you do for cattle?" He then replied with indifference, "I think too much of my cigar." This should make the tobacco smoker blush with shame. If there is no trace of manhood left, he will not. Tobacco poison has robbed him of his moral sense.

The man who says that he smokes to quiet his mind and soothe his nerves will find a complete answer to his lamentable statement in the article by the writer, entitled: "Tobacco Smoking An Evidence of

a Lack of Soul Knowledge of God." Reprints of which may be had of the author on receipt of addressed and stamped envelope.

Why is the average man so inferior to the average woman? The average man has to dope himself, so abnormal is he; while the average woman stands in just as hard places in life in the majesty of womanhood, though often having to suffer the affront, the discomfort and harm of having tobacco smoke blown into her face and into the atmosphere she has to breathe, by undeveloped man.

What a picture! What a stigma the tobacco smoker, especially the professional man, besmirches himself with.

FIRE!

A distant rapid clang and a thrill,
And I turn about with the surging crowd
To look, and listen, and wait until
A clatter of hoofs grows near and loud.

Traffic dead, and a car blockade;
The waving back of a restless throng—
"Back to the curb!" must be obeyed,
Or risk of life as they fly along.

A driver tense and as unafraid,
Urging his steeds to a swifter flight;
Ah! It's a rush of the fire brigade,
Out to battle with flames tonight.

Three abreast in their buckled gear;
A heavy draft on their polished hame;
And hoof-beats loud on the highway clear,
In a heated dash to a goal of flame.

O, lightning-swift they've passed along,
And the crowds close in and fill the wake;
Again the sound of the trolley gong
And a distant clang as they turn up "Lake."

J. D. R.

DOMESTIC AND FOREIGN REGISTRATION OF TRADE-MARKS.

The following communication from Davis & Davis, Patent Lawyers, of 220 Broadway, New York, and Washington, D. C., on the necessity of foreign registration of trade-marks is of importance:

The person who first uses in this country any lawful trade-mark in connection with goods of a given kind has exclusive right to continue the use of it, and he may prevent all other persons from using the same trade-mark on the same kind of goods, or from using any mark which the ordinary buyer would be likely to mistake for that belonging to the first user. If a person who had no right to use it should register it as his own, this fact would confer no right upon him. When it is desired to establish the date at which the use of the mark began the registry of the trade-mark in the Patent Office is useful, because it will show that the person who registered the mark was using it at least as early as the date of registration. His opponent, even though he had the same design in use before that time, may have some difficulty in establishing that fact by satisfactory proof.

In a great many foreign countries title and exclusive right to a trade-mark depends upon *priority of registration*, and not upon first adoption and use. Many American firms have discovered this to their great cost. The daily press and trade journals have recently published many instances in which American firms have suffered from a most pernicious form of blackmail in Cuba and Japan, and our Consular reports from other foreign countries are full of warnings to American manufacturers to register their trade-marks in all foreign countries in which they are doing business. In many of these countries the registration of the marks gives to the registrant absolute title thereto and also gives him the right to have goods bearing such marks seized at the customs house and confiscated.

It should be strongly impressed upon American merchants and manufacturers who are seeking to develop their export trade that their trade-marks and trade names should be registered in every country where they are seeking a market for their goods.

In a report of a recent Commissioner of Patents this matter was carefully considered and the following quotation may be of interest:

"The importance of having trade-marks protected abroad, and in many countries registration is necessary to protection, has been forcibly impressed upon American manufacturers, who, sending their

goods into some foreign country, have found the very trade-mark which has become valuable to them registered in that country by some citizen of that country who made application for registration for no other purpose than to enable him to demand of the American manufacturer a price for the right to sell goods marked with that trade-mark in that country. As in a number of European countries registration of a trade-mark is attributive of property in such mark and is granted, not to the first adopter and user of the mark, but to the first applicant for registration, and as in these countries the registrant under the laws there in force can forbid the importation of goods marked with the trade-mark registered by him, or even compel the seizure of such goods, it is evident that such registrant has the manufacturer at his mercy so far as trade in that country is concerned."

As an instance of how the scheme has been worked in Germany we quote from a report of Consul-General Frank H. Mason, from Berlin:

"It appears necessary to recall the attention of American exporters to a very peculiar provision of the German law for the registration of trade-marks, which is not infrequently used to the great and unjust disadvantage of Americans and other foreigners, under the German statute, any person may register and secure right to any name or other device used as a trade-mark which has not previously been registered here by some other firm or person. In other words, the officials before whom the application is brought make no inquiry to ascertain whether the applicant has ever used the proposed trade-mark or has any right to it, but simply look over the record to ascertain whether it has been registered in Germany. If not, it is admitted to registration without further inquiry or delay. ♪

"The readiness with which such a practice can be abused is apparent. When, years ago, American bicycles began to be imported into Germany, certain persons interested in blocking the trade got the trade-marks of two or three makers registered in their own names, and either obliged the legitimate American owners of the trade-marks to buy them off—in other words, to pay a species of blackmail—or to change the marks on all bicycles exported to Germany.

"In a recent case, the trade-mark on a special brand of American preserved fruit was registered here by an outsider, so that the real

owner had to buy from the usurper the right to use his own trade-mark in this country.

"This abuse has become so notorious that a leading patent attorney of Berlin, writing in a recent number of the *Technische Rundschau*, says of the law that its effect is to legalize and facilitate the theft of a trade-mark.

"The obvious suggestion to all American exporters is that before exporting or seeking to export to Germany any kind of merchandise covered by a well-known name, they should have such name or trade-mark duly registered in this country, where all such rights are carefully protected and prosecutions for infringements easy and effective."

This form of blackmail has been carried on in other European countries.

ARMY DENTAL CORPS BILL.

Editor American Dental Journal,
Chicago, Ill.

Dear Sir:—

Enclosed you will find copy of the Army Dental Corps Bill now before the House Committee on Military Affairs. This bill will doubtless be changed in many respects before it becomes a law, and it depends upon the support of the National Dental Association Legislative Committee's efforts by the State organizations of the United States as to the terms being better or worse. The draft of the bill, H. R. 23097, originated in all its terms in the office of the Surgeon General of the Army, and that department stands behind it, I merely introducing it as the representative of the National Dental Association, and accepting it as the minimum measure acceptable to the dental profession, by virtue of a resolution of the executive council and direction of the chairman of the legislative committee. Heretofore there has been little interest shown by the State societies and officers as the matter of a commissioned dental corps in the regular army appeared to be centered in some 30 to 85 men directly connected or hoped to be, with the corps.

I desire to call to the attention of all State and local society officers the fact that after January 10, 1910, automatically by virtue of the U. S. militia law, known as the "Dick Militia Law" so soon as

a dental corps with rank is incorporated into the regular service of the United States army, a dental corps under the same conditions and terms is incorporated into the State militia of every State and Territory in the Union. As the terms of the Surgeon General's Bill call for 1 to 1,000 of enlisted men, it can be easily figured out for each State, what its quota of commissioned dental surgeons will be. As the appointment will be to the staff corps, one at least will be on the governor's staff, with all the social status that goes therewith. As there is to be one of the greatest struggles in political life to confront in the Congressional elections the coming fall, it is a very opportune time to secure proper influence to support a concentrated action by dental societies, and if strongly advanced and directed to the proper men in Congress will, without doubt, obtain the desired result. If the dental profession is interested in obtaining the status upon an equality with the medical profession in the army and militia of the U. S. it will, through proper channels, by societies, and letters to the congressman of their district by individuals, take steps to aid the representatives of the National Dental Association. I also desire to call to your attention that by virtue of the same law quoted, it is impossible to obtain a State militia dental corps with rank through any State measure or legislation, but that it must come through national legislation. We would be pleased to hear from those who may desire to aid in obtaining the above legislation as soon as possible, inasmuch as many States will be soon holding their annual conventions. Address Dr. Wm. Crenshaw, chairman, Atlanta, Ga., or Dr. Emory A. Bryant, The Burlington, Washington, D. C.

EMORY A. BRYANT.

[PUBLIC—No. 145.]

[s. 4316.]

An Act to further amend the Act entitled "An Act to promote the efficiency of the militia and for other purposes," approved January twenty-first, nineteen hundred and three.

"SEC. 3. That the regularly enlisted, organized, and uniformed active militia in the several States and Territories and the District of Columbia who have heretofore participated or shall hereafter participate in the apportionment of the annual appropriation provided by

section sixteen hundred and sixty-one of the Revised Statutes of the United States, as amended, whether known and designated as National Guard, militia, or otherwise, shall constitute the organized militia. On and after January twenty-first, nineteen hundred and ten, the organization, armament, and discipline of the organized militia in the several States and Territories and the District of Columbia shall be the same as that which is now or may hereafter be prescribed for the Regular Army of the United States, subject in time of peace to such general exceptions as may be authorized by the Secretary of War:

IN THE HOUSE OF REPRESENTATIVES.

MARCH 16, 1910.

MR. WILEY introduced the following bill; which was referred to the Committee on Military Affairs and ordered to be printed.

A B I L L .

To improve the status and efficiency of dental surgeons in the United States Army.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That for the purpose of securing an efficient dental service in the army there should be attached to the Medical Department a dental corps, which shall be composed of dental surgeons and acting dental surgeons, the total number of which shall not exceed the proportion of one to each thousand of actual enlisted strength of the army; that the number of dental surgeons shall not exceed sixty, and the number of acting dental surgeons shall be such as may, from time to time, be authorized by law in accordance with the needs of the service.

SEC. 2. That all original appointments to the dental corps shall be as acting dental surgeons, who shall have the same official status, pay, and allowances as the contract dental surgeons now authorized by law.

SEC. 3. That acting dental surgeons who have served three years in a manner satisfactory to the Surgeon-General of the Army shall be eligible for appointment as dental surgeons, and, after passing in a satisfactory manner an examination which may be prescribed by

the Surgeon-General, may be commissioned with the rank of first lieutenant in the dental corps to fill the vacancies existing therein. Officers of the dental corps shall have rank in such corps according to date of their commissions therein and shall rank next below officers of the Medical Reserve Corps. Their right to command shall be limited to the dental corps, and they shall be entitled to the respect and obedience of all enlisted men.

SEC. 4. That the pay and allowance of dental surgeons shall be those of first lieutenants not mounted, including the right to retirement on account of age or disability, as in the case of other officers: *Provided*, That the time served by dental surgeons as acting dental or contract dental surgeons shall be reckoned in computing the increased service pay of such as are commissioned under this Act.

SEC. 5. That the appointees as acting dental surgeons must be citizens of the United States between twenty-two and thirty years of age, graduates of a standard dental college, of good moral character and good professional education, and they shall be required to pass the usual physical examination required for appointment in the Medical Corps, and a professional examination which shall include tests of skill in practical dentistry and of proficiency in the usual subjects of a standard dental college course: *Provided*, That the dental surgeons attached to the Medical Department at the time of the passage of this Act may be eligible for appointment as first lieutenants, dental corps, without limitation as to age: *And provided further*, That the professional examination for such appointment may be waived in the case of dental surgeons in the service at the time of the passage of this Act whose efficiency reports and entrance examination are satisfactory to the Surgeon-General.

SEC. 6. That the Surgeon-General of the Army is authorized to appoint boards of examiners to conduct the examinations herein prescribed, one of whom shall be a surgeon in the army and two of whom shall be selected by the Surgeon-General from the commissioned dental surgeons in the corps.

FIVE GREAT PROBLEMS IN DENTISTRY.

The Five Leading, Unsolved Problems in Dentistry are and have been—
THE AMALGAM FILLING,
PHOSPHATE CEMENTS,
CARIES AND EROSION,
OBSTINATE PYORRHOEA &
ORAL PROPHYLAXIS.

BY J. OXFORD KELLER, D. D. S.

This paper will discuss :

Lightning Cement Test.

Crown Bridge and Inlay Mishaps.

Least Liquid Best Cement.

Sets Under Moisture Cements.

Ink Test Foolishness.

Erroneous Knowledge About the So-called Glacial

Phosphoric Acid and Directions for Using Everybody's Cement.

Keller's Lightning Cement Test knocks foolish prejudice higher than Gilroy's kite.

Phosphate Cements, All Soluble, hence no standard. Cement A may dissolve in one mouth in a few months, and Cement B, same mouth, may last for years, and vice versa. Cement A may last in another mouth for years, and Cement B, same mouth, may wash out in a few months. Therefore no use to wait and "*try it*" for years and then may not know—because Keller's Lightning Cement Test will enable the dentist to know and decide at once at least if safe to use, and not be deceived by the sharp advertiser.

Setting and Kneading Tests: Make two mixes, one suitable for bridge work, and the other, a thick, putty-like mix, suitable for fillings. Allow to set. During the setting process, say ten to thirty minutes, the cement mass should cut and be leather-like, and not become brittle or crumbly, during the setting.

Gloss Test: When set, the cement surface should have slight gloss. No gloss means too much water in liquid. *Bad*. Very glossy means over acid liquid. *Worse*.

Tasting Test: When set, say half hour, cement mass should

have but slight acid taste, or none. It should be quite or near tasteless in twenty-four hours or sooner.

Note: Neither gloss nor taste in fifteen minutes means too much water in liquid. *Bad.* Very glossy and much taste in fifteen minutes, means over acid and solvent tendencies. *Worse.*

Chemical Equivalence: Slight gloss and no taste, under foregoing conditions, shows that the phosphoric acid, its phosphates and water in the cement liquid are in chemical equivalent proportions.

Best Liquid.

Sixth Test: The heavier the powder, the lesser the liquid, the better the cement. Look at it. A high class powder will flow and pour like sand. Grit particles will not cohere. A low grade powder will be light, loose, flaky and flour-like. No grit particles cohere. More grit, least liquid; best cement,; for durability. High grade powders are best for crowns, bridges and permanent fillings. Low grade powders are best for temporary fillings, treatments, regulating work, bases and cappings.

Crown, Bridge and Inlay Mishaps always mean bad dentistry, or bad conditions, or both. Phosphate cements do not hold crowns and bridges. They imbed the work only and hold by wedge friction. If the proper mechanical conditions exist or are made, crowns and bridges will be self-held. Cements are auxiliaries only, and a bar to the salivary secretions. However, in some cases, right mechanical relations do not exist and cannot be made, resulting in bad conditions, which soon cause the art work to come loose.

Bad Dentistry is the fault of the operator. He should, as near as possible, shape and make crown pins, bridge posts and inlay cavities with right mechanics, avoiding bad conditions. Then he will have no cause to blame the cement for crown, bridge and inlay mishaps.

Phosphate cements will not hold inlays. The dentist who depends on any cement to hold an inlay will make a failure. The inlay cavity must be shaped so that there will be mechanical retention as near as possible. The inlay is then imbedded with cement in its cavity so as to hold in position and bar the salivary secretions.

Sometimes the teeth in their relations to antagonizing and surrounding parts, are such that the dentist can neither shape nor make bridge posts, crown pins, nor cut inlay cavities with right mechanism, then and then only, can he be held faultless for premature mishaps.

Least Liquid Best Cement: Considering the whole field of phosphate cement science, its physics and its chemistry, there is no way to escape a logical conclusion, that the calcium and zinc oxid powder, which requires least liquid, same mix consistency, will make a cement with most body, strength, durability and least solubility; hence the powders, which requires the least liquid and still enable successful emplacement of the art work, will be the best cement to use for crowns, bridges and inlays.

Causes of Solubility: Phosphate cements in the mouth are disintegrated by the neutral salt, neutral salt-acid, or neutral salt-alkaline agencies in the salivary secretions. The potassium element is the basis of these agencies. It either dissolves the cement itself, else carries the acids or excess alkalies which causes the decomposition. Potassium has a very high chemical affinity for phosphoric acid. It unites with it in the cement mass, forming potassium phosphate. The zinc oxid is liberated, else taken up by the associate acids with the potassium element. If these alkaline agencies have such high chemical affinity for phosphoric acid in the cement mass, it can be readily seen that the larger the acid percentage, the more active and ready will be the chemical combination; therefore, the smaller the percentage of phosphoric acid in the cement mass, the lesser will be the tendency to alkaline disintegration of phosphate cements in the oral cavity.

Sets Under Moisture Cements: "Sets under moisture" is a phrase much used by specious advertisers, intending to convey the impression that their cements will set better in water or in the salivary secretions than without access to these fluids. Some makers advertise, "should be subjected to moisture."

"Hydraulic cement," is another phrase which is wrongfully used for the reason that all phosphate cements are hydraulic. Water is not only necessary to hold the phosphoric acid and the phosphates in the liquid on solution, but to carry them into close contact with the zinc oxid molecules or particles, so that crystallogenic attraction and chemical union can take place; therefore, all cements are hydraulic, because water is a necessary constituent. Powder and liquid in chemical equivalent proportions need no more moisture, but is harmed by it.

All phosphate cements made with soda phosphate liquid, if allowed to set under moisture, will have their outside surfaces, after set,

so soft as to dent with the finger nails. The absorption of moisture, disarranges the normal chemical union that should take place. But some cements will set under moisture better than others. Some will barely set at all in water; others will set fairly good except upon their outside surfaces. Quick setting phosphates set better under moisture than the slow setting. Light, flaky, flour-like powders with quick setting liquid, set better under moisture than the high grade powders with slow liquids.

Ink Test Foolishness: The ink test has been used to advertise the quality and porosity of dental cements. It is made by placing cement pellets in ink. All phosphate cements are porous, or become porous in a few months after mixture of powder and liquids; hence, it may be error to condemn a cement because it is an absorber of test liquids, and to the contrary.

Causes of Porosity: Cement masses made with all grit powder are porous, during the initial setting (twenty-four to forty-eight hours), because the grit particles are full of minute holes, caverns, or small open spaces, as shown under the lense of a high power microscope. These inter-crystal, or inter-molecular spaces in fresh made pellets absorb only the coloring matter from the fluid test, but not the ink fluid itself, but the great force of capillary attraction. A cement mass made with the highest grade grit powder, possible to calcine, may absorb this coloring matter through most of, or its entire structure; yet the ink test foolishness condemns the cement mass which discolors most.

Cement masses made with no grit powders, flour-fine, light and flaky, are at first less porous than the all-grit cement, because the former are very fine, molecular-like and fit so close together in the cement mass, that there is not sufficient capillary space and force during the initial setting (twenty-four to forty-eight hours), to take up the test liquids or salivary secretions, so extensively, if at all. But after a time, say a few months or years, the low grade cement will have passed through a complete crystallization process. Its whole structure may become crystalline, with capillary porosity, full of inter-crystal spaces, and become an absorber of ink test liquids of the salivary secretions, reverse conditions with one-third grit and all grit cements. Such cements undergo extensive bulk changes, lack strength, and are more liable to wash out. In bridge cups they may granulate, become

porous and outrageous absorbers of saliva and organic matter. Putrefaction results. When the bridge is removed or comes loose, an offensive odor is emitted. Bridge cups may be breeding places for deadly microbic cultures. The putrefactive stench is logical proof of such cultures. Stench can be reduced or remedied only by using aluminum or some suitable non-soda phosphate liquid with higher grades of zinc oxids.

Proving Experiments: Take forty grains of all grit zinc oxid, and make a thick putty-like mass with slow liquid. Allow to set ten or fifteen minutes, then weigh carefully (it will weigh forty-eight to fifty grains), only eight or ten grains of liquid. Place in ink twelve hours or more; remove; then weigh. The increase in weight, as a rule will be but one-quarter to one-half grain, conclusive proof that the cement mass extracts coloring matter only from the ink fluid and does not absorb the ink fluid itself. Take forty grains of no grit powder, molecular, with soda liquid (better use aluminum), mix, and allow to set as above, then place in ink. It will not at first absorb the test fluid for the reasons aforementioned, but is liable in crown and bridge cups to disintegrate and become so porous as to absorb saliva with organic matter. Putrefaction follows.

Logical Proof: Asher's Enamel is a grit silicate with phosphate liquid. A cement mass made with it will absorb ink throughout its entire structure; yet it is more durable and many times more resistant to acrid saliva than the ordinary crown and bridge cements.

So-called Glacial Phosphoric Acid: Many phosphate cement makers think they are using phosphoric acid when they use glacial phosphoric acid as bought in stick form in the drug shops. It is named glacial because of its ice-like appearance. Instead of being a glacial phosphoric acid, its actual chemical composition is a mono-basic soda phosphate. It contains from sixty to seventy per cent of said phosphate, balance free mono-basic phosphoric acid. All liquids, therefore, made with it have from fifty to sixty-eight per cent soda phosphates, with free phosphoric acids, held in aqueous solution.

The presence of soda phosphate in cement liquids heretofore in use, has been the chief cause of their notorious solubility. They are particularly liable to attack by the neutral salt agencies in the saliva, say for instance, potassium lactate. It can be readily seen that the potassium of the lactate has a higher affinity for the phosphoric

acid of the cement than said acid has for the zinc in the cement mass. Also that the lactic acid of the lactate has a high affinity for soda in the soda phosphate liquid in the cement mass. By double chemical reaction the phosphate cement is disintegrated. It washes out.

Directions for Everybody's Phosphate Cement: Phosphate cements properly mixed and used render very much better service than if carelessly manipulated. The following directions will enable the dentist to control and regulate, gain proper mixes, and better results.

Control and Regulate: If you are in a hurry, wait until your hurry is over. Add the powder, several additions, little by little. First, small addition thoroughly spatulated neutralizes the free phosphoric acid, controls, regulates and makes slower setting. Several more additions to desired thickness, regulate accordingly, make an even regular cement mass; whereas, if all the powder is added, one or two additions, quick chemical action and crystallization result, the cement mass becomes irregular, quicker setting and may suddenly granulate, with high heat. By thoroughly and slowly spatulating, a first small addition, a quick setting liquid may be made much slower setting. But do not over spatulate. Quit as soon as powder and liquid are fully intermixed, so as to not interfere with the chemical action. Mix as thick as you can use it, so as to be able to press the work home, crowns, bridges and inlays. More powder, more body, strength, stickiness and less solubility. Make a suitable flow mix for cappings. Mix to a putty-like stickiness or thin flow for bases and treatments, according to requirements. Thick mixes, as thick as can be used, and close fitting work, give best results. Add all the powder, one or two additions, to make quick or quicker setting for treatments and special work. Aluminum phosphate liquid largely reduces putrefactive stench, crown and bridge mishaps, and solubility.

Non-Hydraulic Cements: Close fitting work bars moisture during the setting and relieves the hydraulic boggy. The dentist sometimes may not be able to have crown and bridge posts dry ready for setting.

Directions: Fill the cup rounding full and overflowing with the cement, mixed as thick as possible, so as to be able to shove the work home. The surplus cement will swipe off the excess saliva or moisture. Close fitted work will bar ingress of saliva. Let surplus remain while setting; then break off, or allow patient to remove after dismissed.

No harm, if during the setting, saliva washes away the surplus, because close fitted work will bar moisture from the cup. Bad dentistry and loose fitting work, only need the so-called Non-Hydraulic Cements.

INLAYS, CROWNS AND BRIDGES.

Special Directions: Mix with cement liquid, about one grain, or one-tenth as much powder as necessary. Allow the free phosphoric acid to neutralize (say about one or two minutes), while you prepare the mouth for insertion. Then quickly, two or three mixes, incorporate quantities sufficient of powder. This method will allow much more powder, make an easier flow, and slower setting. More powder, more body, more strength and durability, is law in phosphate cements.

These directions will be found efficient in setting crown, bridge and inlay work. Before setting the inlay, its cavity may be made moist dry by wiping with a damp ballette of cotton. Quick adhesion and better flow of inlay cement may be obtained by placing a drop of cement liquid in the inlay cavity, wiping out with a dry ballette of cotton. Better and quicker adhesion to the walls of the inlay cavity may be gained by wiping with tri-basic phosphoric acid and water in chemical equivalence. This will have ready action on tooth structure and give quick chemical adhesion.

My doctrine, is to lay aside,
Contention, and be satisfied.
Just do your best, and praise or blame,
That follows that, counts just the same.
I've always noticed that great success
Was mixed with trouble more or less,
And it's always the man who does his best
That gets more kicks, than all the rest.

JAMES WHITCOMB RILEY.

Our Foreign Department

THOMAS L. LARSENEUR, D. D. S., Foreign Department Editor

THE VACCINE TREATMENT OF PYORRHEA ALVEOLARIS (ALVEOLAR OSTEITIS).

BY KENNETH GOADBY, M. R. C. S., ENG., L. R. C. D., LOND., PATHOLOGIST
AND LECTURER ON BACTERIOLOGY, NATIONAL DENTAL HOSPITAL;
LECTURER ON DENTAL HYGIENE, LONDON SCHOOL OF
TOPICAL MEDICINE.

(*The Dental Surgeon*, London, Jan. 8th, 1910.)

In an earlier communication* I have called attention to the various types of bacteria which are to be found in chronic suppurative diseases of the human gums, and I have shown that a large number of cases generally termed Pyorrhea alveolaris might be advantageously treated by means of vaccines prepared from the infecting organism isolated from the pus. Since those communications were published I have had further opportunity of investigating and treating alveolar osteitis, or pyorrhea alveolaris, as it is commonly called.

For the general purposes of description, the cases of suppuration of the alveolus of the jaw may be divided into two classes: (1) Those which exhibit some constitutional disturbances, referable to (a) intoxication, and (b) direct bacterial invasion, and (2) those showing no constitutional disturbances of a definite type, but which have from time to time various minor pathological manifestations about the oral mucous membrane.

The general symptoms associated with suppuration of the alveolus are not always in direct proportion to the amount of local disease observed along the gum margin. Many of the cases included in the table below are ones in which the pus was small in amount, or even only

*The Lancet, March 9, 1907. Transactions of the Odontological Society, 1908.

recognizable on microscopical examination, whereas in others in which considerable suppuration existed along the whole of the alveolus in the upper and lower jaw the constitutional symptoms were only slight. In four of the cases recorded all the teeth had been removed on account of their looseness, but the constitutional symptoms, although greatly improved, did not entirely disappear, while in one case the removal of the teeth produced considerable aggravation of the existing intestinal disease.

In thirty-two of the cases the suppuration was not general, but was confined to individual teeth or groups of teeth. In some of the other cases, although the suppuration was general, the amount of loss of the alveolus was not great, and the teeth had not become denuded of their bony attachment. In several cases the suppuration was undoubtedly started by artificial bridges and crowns. Gold cap crowns, particularly when fitting badly (as they usually do) are notoriously the predisposing cause of many alveolar pyorrheas.

In dealing with pyorrhea alveolaris, the dental surgeon is frequently placed upon the horns of a dilemma; the patient's doctor has traced the origin of some chronic ill-health, anaemia, or gastrointestinal symptom to the disease of the mouth, and he sends the patient to the dental surgeon to remove the septic cause—*i. e.*, teeth. There may be considerable pus formation, and yet the pockets around the affected teeth may not be deep, the alveolar process may not be so far destroyed as to have caused direct loosening of the teeth, and there is no pain, the patient is therefore exceedingly adverse to removal of all the teeth. If the peridental membrane and alveolar process are so far damaged that no efficient socket remains, the dental surgeon is in no perplexity as to what should be done, but where the teeth are not so far affected the decision as to the treatment is more difficult. It is in these cases that bacterial knowledge and treatment by means of suitable vaccines is the proper course to adopt, for not only can the general symptoms of disease be eliminated, but the local condition can be so far treated that the teeth may be retained and the suppuration cured.

Four distinct phases of alveolar osteitis are to be recognized; it is quite possible that these constitute two different disease entities:

Type 1.—The gums and the teeth appear perfectly normal. Here and there slight depressions may be noticed between individual teeth,

and careful examination in these regions will exhibit the presence of a certain amount of pus, sometimes only to be recognized microscopically, showing the interdental bone has already become affected, and a photograph shows distinct loss of the bony tissue.

Type 2.—The condition is characterized by easily bleeding gums, which are slightly detached from the teeth; there is a great increase of interdental space with loss of the interdental bone which becomes softened.

Type 3.—The hypertrophied gum noted in the second type for the most part, becomes shrunken, but there is marked injection of the vessels passing up from the buccal surfaces; the bones in various directions have become removed, not only between the teeth, but in the anterior and posterior surfaces of the alveolar plate.

Patches of osteoporosis or rarefying osteitis are scattered about the alveolus, and in many instances the bone has become so thinned that a fine pointed probe or hypodermic needle may be passed right through the jaw almost at the level of the roots of the teeth with little more opposition than when passing it through a thick towel. The infected mucous glands, which I have described elsewhere, are also seen near the infected areas.

Cases with Slight Local Symptoms of Type I.

(No generalized infection of gum margins or alveolus, local infection between contiguous teeth; pus small in account. Gums pale, but normal in appearance).

Type 4.—The teeth are all loose in their sockets, the alveolar process has become absorbed, the gums are boggy, sinuses may be found here and there in the mouth, and as a rule marked foetor of the breath is present.

The foetor of the breath may be an early or late symptom, and depends for its presence on the special types of organisms. It is particularly foul when the bacillus necrosis is present, and has a sweetish sour smell in the presence of the *saccharomyces neoformans*.

Of the fifty-one cases tabulated below (thirty-nine females and twelve males) thirty-six were cured in that all general symptoms, anaemia, toxaemia, weakness, and chronic intestinal dyspepsia, cleared up together with the local suppuration. Nine were relieved; that is to say, the general symptoms disappeared, though the local discharge remained. Two cases died—one of rheumatoid arthritis; the other

of lymphatic leukaemia. Four of the cases were not treated with the vaccines, but by extraction only; three of these cases have developed other symptoms, which are referable to the original chronic intoxication, and the fourth case recovered entirely.

BACTERIOLOGY.

As in several previous communications, I have dealt at length with the bacteriology of the group of diseases associated under the term pyorrhea alveolaris, it is only necessary to mention the organisms isolated and used as vaccines.

The methods adopted in dealing with the cases have been: microscopical examination of the films made from the pus; leucocyte and blood count; examination of haemoglobin, and differential blood count. The films were stained with Gram's and Leishman's method. The organisms present on the films vary enormously, and the following bacteria are recognizable by their morphological forms: *Leptothrix racemosa* Vicentini, the bacillus fusiformis, the three varieties of mouth spirochaetes, a large number of organisms belonging to the diphtheroid group, diplococci, streptococci, streptobacilli, and yeasts. A very large number of other morphological forms, some of them often classed as leptotrix, have also been found; one organism is sometimes present, a bacillus generally occurring as diplobacilli anaerobic in habit, growing out into long threads in liquid media, and producing a very large amount of evil-smelling gas, which may be classed as the bacillus necrosis. In the films stained by Gram's method the *leptothrix racemosa* retains the stain, as do some of the diphtheroid bacilli, some of the cocci, and the yeasts; the other organisms decolorize.

Agar streaks were made from the pus, under the usual precautions to eliminate adventitious forms, and wherever possible from an extracted tooth; the organisms were plated out and the individual bacteria isolated and tested on the usual cultural media. A large number of organisms were isolated, but in order to determine the particular infecting organism in the individual case recourse was had to the method of the opsonic index originally described by Sir Almroth Wright, and in a manner described in one of my earlier papers. (The *Lancet*, *loc. cit.* Transactions of the Odontological Society, 1908.) The various bacteria in each case, which gave an opsonic index either considerably above normal or considerably under, were presumed to be causal agents of the disease.

The bacteria isolated and determined in this manner were streptococci of the longus type belonging either to the streptococcus faecalis or streptococcus angiosus groups of Andrews and Horder. (*The Lancet*, Sept. 15, 1906.) The pneumococcus was found at times, but the staphylococcus aureus was more common. The staphylococcus aureus met with in the mouth is characterized by the production of a duller pigment than the staphylococcus aureus occurring in other suppurative lesions; it is somewhat rare for it to have the bright orange pigment generally associated with the name. The orange pigment may develop after a number of subcultures, especially when potato is used as the medium. Another type of staphylococcus not infrequently found, as the tables show, is the staphylococcus citreus granulatus described by Freund. (Inaugural Dissertation, Freiburg, 1898.) This organism differs from the other staphylococci in being Gram-negative, and is often confounded with the micrococcus catarrhalis, which latter organism is present amongst the Gram-negative cocci isolated. A number of organisms of the micrococcus catarrhalis type have also been recognized as usual agents in the supuration, but these organisms by no means all conform to the catarrhalis type in that they frequently produced fermentation of one or other of the carbohydrates upon which they were tested; but the general type of a non-liquefying non-Gram-staining coccus of somewhat large dimensions with a curious oat-like form has been the type of organism under which I have grouped the micrococcus catarrhalis.

The saccharomyces neoformans has been found four times in the present series, in two of the cases with severe local symptoms. It is not so frequently present as the other bacteria cited, but in most of the cases in which I have met with it, in addition to those described here, these yeasts have been present in the hypertrophied gum tissues. I have also met with it in new growth of the carcomatous type in the mouth, and, as I have elsewhere (Freund: Inaugural Dissertation, Freiburg, 1898) described, this organism when inoculated into animals produces metastatic growths closely simulating sarcoma.

The last type of organism which I have found present amongst these fifty-one cases is a bacillus belonging to the somewhat ill-defined group of so-called diphtheroid bacilli. The organism, which closely resembles the diphtheria bacillus in its staining reaction in that it gives a positive reaction with Neisser; it does not produce toxæmia when

innoculated into guinea-pigs subcutaneously, but produces localized suppuration if any reaction occurs. There are two varieties, one which ferments cane sugar and lactose, and the other which is uncertain in its fermentation; the colonies of the one on agar are minute gray, exceedingly sticky, and produce a brownish growth upon the surface of the agar, whilst the streaks of the other organism show the lesser amount of fermentation of the carbohydrates. I have met with these diphthroid bacilli in chronic periosteal swelling associated with local mouth infection, more particularly in the region of the wisdom teeth.

A considerable number of other bacteria have been isolated and tested from these cases; but as they gave no agglutination with the patients' serum, no marked deviation from the normal as regards their opsonic index, and on inoculation into animals no local nor general pathological lesions were produced, their casual relation to the suppuration is probably little or *nil*, and they have therefore not been included in this account.

In a recent paper which Eyre and Payne (Odontological Section of the Royal Society of Medicine, Nov. 22, 1909) have published they record the causal organism in thirty-three cases of pyorrhea alveolaris. The micrococcus catarrhalis is described by them as the predominant organism, it having occurred alone in fifteen of the cases, and in conjunction with the streptococcus, pneumococcus, or staphylococcus aureus in others. They have also described the streptococcus, pneumococcus, and staphylococcus as occurring alone or in conjunction with other bacteria. Their findings corroborate what I have elsewhere stated with regard to the bacteria found, although in my original paper I was not prepared to group all the non-Gram-staining organisms of the coccil type into one group of catarrhalis, owing to their differing in their cultural reactions. I am still inclined to regard the various cocci which are to be found in the mouth, and which do not stain by Gram's method, as belonging to a very wide group related on the one hand to the meningo-cocci, and on the other hand to the gonococci, while the catarrhalis may be regarded as an intermediate group.

METHOD OF TREATMENT.

The method of treatment adopted in these cases has been the preparation of a specific vaccine from the given case, the organism or

organisms chosen for the vaccine being, as I have already explained, those which showed a deviation from the normal in their opsonic index to the patient's own serum. The vaccines have been prepared in the ordinary way adopted in my laboratory; a small amount 0.2 per cent, of trikresol is used as a preservative.

As a rule, constitutional disturbance has been rare after the introduction of the vaccine, but in a few instances well-marked constitutional disturbance followed, such, for instance, as vomiting, acute headache, add general malaise and a few cases where the opsonic index was abnormally low to the organisms used as a vaccine (although the dose given has been properly reduced), the constitutional disturbances have been very definite and were considerably prolonged. It is not uncommon when the micrococcus catarrhalis is used as a vaccine to get constitutional disturbance closely simulating an acute coryza, particularly in these persons who are susceptible to the common cold. When rheumatic symptoms are present an exacerbation may be looked for, but it does not, as a rule, occur unless the dose be too large.

As far as possible, the treatment has been controlled by an examination of the opsonic index of the blood, but small variations have not been regarded as of great moment. Considerable variation in the index has been observed to take place immediately after the inoculation and following two or three of the earlier vaccinations, but after this, although the dose may be increased, the amount of response, as evinced by the dertermination of the opsonic index, is not great, and the clinical conditions, local and general, must be taken into account. After plotting out a considerable number of opsonic curves I am of opinion that the response to inoculation is definitely shown, I consider, therefore, that, although the error of observation of the opsonic index may be a large one, owing both to personal equation and mechanical errors, to say nothing of physiological variations of the leucocytes used, the opsonic index still gives a very considerable amount information with regard to the progress of the cases, and should not be dispensed with.

LOCAL TREATMENT.

It is perhaps scarcely necessary to lay down any special line of local treatment in addition to the method of immunizing, as each case requires to be treated individually and from a general surgical standpoint. It is obviously impossible to expect that the denuded

peridental membrane of the teeth, the destroyed alveolus, or the shrunken gum will return to the condition which existed prior to the disease by homologus immunization or any other means that can be devised. All that can be hoped for is to arrest the progress of the disease, to prevent the further destruction of the bony tissue, and where there exists some framework of the bony tissue around the teeth, such tissue may undergo regeneration.

It follows, therefore, that, where the so-called pockets exist around individual teeth, recourse must be had to active surgical methods. In my own hands the use of the actual cautery has been attended with the best results, the cautery wounds healing quickly and rapidly after previous immunization has been undertaken. Much knowledge of the local condition may be obtained by the use of the X-ray photograph, and it is well in the early stages to determine how far absorption has taken place before recourse is had to surgical measures. Antiseptics are of little avail in the treatment of pyorrhea, and antiseptic mouth-washes never gain access to the sockets of the teeth unless they are forcibly applied by means of a fine-nozzled syringe, but scrupulous cleanliness is essential both after the removal of the loosened gum and during the process of treatment, the mechanical action of adhering food naturally tending to interfere with the healing of the tissues.

In the accompanying tables of the cases under discussion a short epitome is given of the cases treated along the lines outlined herein. The general symptoms associated with the cases and referable to the mouth disease, embrace many ill-defined symptoms pointing to show toxic absorption or to definite bacteriaemia. The persistent bronchial catarrh, often with localized symptoms, suggestive of early tubercular disease, is to be found; gastro-intestinal symptoms, nausea, sometimes vomiting, with occasional diarrhea alternating with constipation, are common. Still more common are rheumatic pains, called variously muscular rheumatism, chronic rheumatism, and at times even gout; and anaemia of a septic type is, as might be supposed, common.

Enlargement of the lymphatics in the neck is not, as a rule, well marked, but on careful examination thickened chains of lymphatics may often be found with distinctly enlarged and often tender lymphatic glands. There is generally but little pain referred to the mouth or teeth, but oftend neuralgia of a fleeting type is attributed either to

the head or neck, and occasionally the face. In the early stages, or in the first two types of the disease as cited above, pain on mastication may be complained of, or a sensation of itching of the gums. In such cases individual teeth are generally found to be quite loose, while the majority of the teeth are sound.

The chief disadvantage of this method of treatment is its necessarily prolonged nature, but as the majority of cases which come for treatment are of four or five years' standing at least, it is not surprising that the cases must be kept under observation for many months.—*Lancet*.

TAKING IMPRESSIONS FOR INLAYS.

BY DR. H. W. C. BOEDECKER.

(*Deutsche Zahnärztliche Wochenschrift*, Berlin, January 9, 1909.)

Two methods for taking impressions for inlays are at our disposal: First, the indirect method, by which a Stent's composition model of the cavity is secured, and a die is made on which the wax model is shaped.

Second, the direct method by which the wax model is carved in the cavity itself. The indirect method has the great disadvantage that the model has to go through three different stages, each one of which constitutes a possible source of inaccuracy. The carving of a wax model in the mouth requires as much care and diligence as a cement or gutta-percha filling. Care must be taken in the selection of a suitable wax. Pure beeswax is unfit, as it is tough and not hard enough for modeling purposes. The hardness of the wax is an important factor, and depends upon the admixture of resin. Wax possessing a melting-point of 35 degrees C. is preferred by the author.

After melting, the wax must re-harden quickly, and it must allow of easy scraping or carving. A soft wax cannot be scraped at all, only cut, which renders it unsuitable for our purpose, since in cutting the tough mass the form drags. In order to test a wax in this respect a portion is scraped off at room temperature; the surface thus obtained must be clear and smooth, the filings must have a fine grain, and under finger pressure must not roll together in pellets, but crumble. It must also be easily worked with sandpaper.

Another requisite of an inlay wax is binding quality at relatively low temperature, allowing of its being kneaded and molded in the hand, and its being pressed into the floor of the cavity and against the cervical border. Any folds caused during the insertion of the wax under pressure must be eliminated, so that the wax model forms a homogeneous mass. Wax that possesses a good binding quality at low temperature offers the additional advantage that more wax can be added to it outside the mouth without distorting the shape of the model. The wax must under no circumstances have real sticking qualities, as it would stick to the instruments in modeling, could not be scraped, and would not permit of a ready removal of the model from the cavity. The color of the wax should be dark enough, so that it can be easily recognized where it protrudes over the margins of the cavity. It must not, however, be so dark that the margins cannot be readily distinguished through a thin layer. The coloring material must be free from metallic substances, as otherwise in burning out the wax, the surface of the mold and consequently of the inlay would be impaired. Of equal importance are the instruments used in modeling the wax. Their cutting edges must be as sharp as possible, so that the wax may be scraped under the slightest pressure, which diminishes any possible danger of displacing the model during the carving. For removing any excess present after the wax has been pressed into the cavity, one uses small lancets, curved spatulas, and flat amalgam pluggers which have been ground to a knife edge. For modeling the masticating surfaces a large spoon excavator of about 3 mm. diameter or scaler No. 9 of the big S. S. W. set is used. In certain places a smaller spoon excavator of about 2 mm. diameter renders a good service. To work out the fissures, a spoon excavator of the same dimensions is applied after grinding its sides to a point. For modeling the approximal surfaces the following three instruments are suitable: For the rough work use a small cement spatula bent to a semi-circle and the spatula-like end of a Woodson's amalgam plugger. For modeling the approximal surface of a filling whose cervical edge goes deeply under the gingiva, a long rectangular curved probe is ground so that its horizontal section represents a triangle. One surface should be inclined toward the handle of the instrument. By pressing this point against the cervical border, any excess can be smoothly scraped off. The instrument can also be used to advantage

in smoothing the lingual and buccal margins of the approximal surfaces, moreover sandpaper or, yet better, cloth strips are used. These must be of sufficient thickness and rigidity so that they encircle the tooth.

The process of making a wax impression in the mouth is as follows: If good wax is used, the cavity need not be oiled, but is simply wiped with cotton, and the wax introduced. To insure a certain degree of dryness of the field of operation, cotton rolls are applied. The wax stick is slowly heated over an alcohol flame, until a piece can be twisted off with the fingers. The wax should not melt in heating nor should it be kneaded excessively, because its working qualities suffer therefrom. Take, for example, a cavity in a lower first molar extending over the masticating and distal surfaces under the gingiva, if the interproximal space is very large or, as in lower bicuspid, very unfavorable of access, a metal plate is placed between the teeth and held in position with cotton during the insertion of the wax. The softened wax is then shaped into a cone, the point of which is introduced to the bottom of the approximal cavity and the mass is pressed with the index finger downward until the approximal cavity is filled. Then by pulling the finger forward, the rest of the wax is pressed into the cavity of the masticating surface. The patient is then requested to close his teeth and to hold them so for at least three minutes, to give the wax time to yield. If the bite is very deep, a piece of thick rubber-dam of a size corresponding to the cavity is laid on the wax and the patient is asked to bite. Thereby the danger of getting too high an inlay is partly avoided.

The excess of wax on the buccal and lingual sides of the interapproximal space is then removed. The remaining excess is still left, then from the approximal side, the probe bent at right angles is pushed into the wax as deeply as possible, and an effort is made to lift the whole mass from the cavity. If this attempt is unsuccessful, it shows that there are undercuts in the cavity walls, or that the wax in the interproximal space is wedged into the inclined surface of the neighboring tooth; in the latter case, the wax must be removed with the curved spatula. After the mass has been successfully removed from the cavity, it is laid in cold water, then the cavity surfaces are examined. If there are any projections which might interfere with the smooth removal of the model, they are eradicated with a sharp

instrument; any excess of the lower portion of the approximal surface is also removed. The upper portion, however, of this surface lying toward the point of contact with the neighboring tooth is left undisturbed; then the model is set back in the mouth. If, in the first attempt at removing, some force has been applied, the model is rinsed in warm water, pressed into the cavity with the finger, and the patient is requested to close the bite. To quickly harden the wax, some cold water is squirted in and the modeling of the masticating surfaces is started.

If there is an excess of wax on the masticating surface, a sharp spatula is heated and the excess cut away, then the patient is asked to bite, and the form is again cooled with water. The wax is then removed with the spoon-shaped scraper until the cavity margins lie free. With the smaller spoon the impressions which the tuberosities of the antagonist teeth have left in biting, are deepened, and with the pointed spoon the fissures of the natural tooth are reproduced. After the masticating surface has been smoothed by careful scraping, the modeling of the approximal surface is begun. To give the form as much retention as possible, the margins of the approximal cavity are first smoothed with the triangular probe. When the margins are scraped smoothly everywhere the probe is again inserted into the wax, if possible at the same point as before, and the model is lifted from the cavity. It can readily be seen if the wax protrudes at any point over the cavity margin. If such is the case, the model is put back once more in place, and the margins are scraped. If at any place too much wax is removed, fresh wax must be added at the respective portion; for this purpose, the model is lifted from the cavity, laid in cold water, and with a jet of water from a syringe any blood or saliva is washed away. Holding the model in the hand, the portion to be built up is dried with a cold blast, a little wax is heated on a spatula until it is nearly fluid, and laid as near as possible to the margin of the model on the portion to be replaced.

Then the model is quickly reinserted and the wax pressed over the cavity margin with the curved spatula. This must be done before the surface of the model becomes moist, otherwise the wax will not cohere at the place where it is folded in pressing.

After the margins are satisfactorily smoothed, the approximal surface is treated with sandpaper or cloth strips, a sufficient space

between the model and the neighboring tooth having been secured outside the mouth by careful scraping. In the proximity of the cervical border the strip may tightly clasp the tooth, and can be pulled to and fro under slight pressure. The closer, however, we get to the point of contact the less should the strip at the same time cover the entire contour of the approximal surface, which is polished with little or no pressure on the strip. For smoothing the buccal half of the surface at this point, the strip is run loosely into the lingual side of the interproximal space and pulled through slowly, yet close to the buccal surface of the tooth. The same procedure is followed in smoothing the lingual half, only in the opposite direction. If the bite is unfavorable, the height of the wax model is examined once more by softening the surface of the wax with air from a heated blower and asking the patient to bite; if then at any portion a brightly polished spot is found, it is scraped out, after polishing everywhere, the model is ready. The point of contact is marked and the model preserved in a small glass or dish filled with cold water.

In restorations of very large contour fillings, it is very often convenient to first shape up the portion adhering to the margins, and then to build up the contours and the tuberosities.

In order to mount the model on the sprue wire, it is taken from the water and dried on blotting paper.

The sprue wire is heated and a small piece of wax attached to its point, then the point of the sprue wire is fastened to the spot on the model, previously marked as the future point of contact. Owing to the wax applied and to the button left after casting, an ideal contact point can be made. After the additional applied wax has hardened, the whole is laid back in cold water. The sprue wire must never be forcibly pressed into the model.

This direct method of making the wax model offers the following advantages: The marginal adaptation of the model in the mouth can be examined with absolute certainty; by scraping the cavity surface of the model a smooth removal without dragging is insured, guaranteeing a perfect fit of the inlay; an ideal point of contact can be secured; the masticating surface is perfectly adapted to the individual case; troublesome grinding in setting the inlay is unnecessary. The only disadvantage of the direct method as over the indirect is that in case of a failure in casting a new model must be made. Yet the per-

centage of failures, due to inaccurate models, is far greater with the indirect method, and in order to avoid the grave danger of a misfit so often experienced with the indirect method, the small risk inherent to the direct method is to be preferred.—*The British Journal of Dental Science*, January 1, 1910.

TO IMPROVE THE COLOR OF PINK RUBBER.

Take a piece of absorbant cotton, saturate it with sulphuric acid and rub it over the prosthetic piece until it is black. Wash off every trace of the acid; the resulting color is a perfect imitation of the natural gums.—*Le Laboratoire et le Progres Dentaire Reunis*.

STOMATITIS GONORRHOICA.

BY WILHELM KARO, M. D., BERLIN, GERMANY.

(*The British Journal of Dental Science*, London, January 1, 1910.)

The syphilitic diseases of the oral cavity are generally well known, but gonorrheal stomatitis is unfamiliar even to a great many genito-urinary specialists and dental surgeons. There are two groups of such patients—new-born infants and adults. In infants, the disease occurs a few days after birth, and complete recovery takes place within a few weeks. Dentists hardly ever have occasion to treat such cases which are left to the obstetrician.

In adults, stomatitis gonorrhoea assumes a very serious form. The few cases that have so far been reported (for evident reasons) have been attended with severe disturbances of the general health. The pathological aspect of the disease is entirely different from that in infants, because in adults the infection is generally deep-seated and the symptoms are grave. In one typical case reported by Mr. Leedham-Green in his text-book, "Treatment of Gonorrhea," London, 1908, the mucous membrane of the mouth was swollen and granular, in some places superficially ulcerated. Another case which affords a very vivid picture of this treacherous disease is cited by Dr. Cutler in the *New York Medical Journal* for 1888. The patient, a woman, contracted the disease from a sailor. The next morning, her mouth felt raw and dry, and the saliva had a horrible taste. On the second day little sores made their appearance about the lips, and the condition

of the mouth remained the same. On the third day the gums and tongue were swollen and painful; on the fifth day the whole inside of the mouth was so intensely inflamed that she was unable to eat, and a whitish fluid mixed with the blood, having an offensive odor and taste, was secreted. On the tenth day the patient was compelled to seek medical advice; the lips were cracked and covered with herpes in all stages of development. The mucous membrane of the lips and cheeks was thickened, reddened, denuded of epithelium, and in small areas covered with a false membrane, which was easily detached, leaving a raw surface. The gums were swollen and retracted from the teeth, bleeding readily upon the slightest pressure. The tongue was also swollen, very sensitive to touch and pressure, and could be but slightly protruded, and then only with great difficulty and pain. Its surface was marred and glazed in appearance, with small superficial ulcers here and there, secreting a thick yellowish pus.

The soft palate presented an inflamed appearance, but beyond the inflamed parts seemed in normal condition. The breath was extremely offensive, although there was but little salivation. The secretion from the mouth consisted chiefly of mucous, pus-cells and epithelium, with the presence of a large number of bacteria. The false membrane contained gonococci. These symptoms were greatly relieved by oral application of glycerine and bismuth subnitrate, together with a mouth-wash of potassium chlorate; the patient disappeared from observation, however, before the cure was complete.

Just as in other infectious disease, a lesion in the oral cavity is necessary to produce a local septic disease. We must suppose that the normal mucous membrane of the mouth does not present a good nutrient medium for gonococci. Gonococci may be found in the mouth without causing specific stomatitis. In all cases of stomatitis gonorrhoea, as far as is known, the gonococci reached the oral cavity from the outside. Whether a metastatic stomatitis may also exist, that is to say, whether the gonococci may be carried by the blood vessels from another part of the body to the mucous membrane of the mouth, has not yet been proved. In theory, however, we must suppose to be the case.



ABSTRACTS AND SELECTIONS.

THE SPHERE OF THE DENTIST IN THE FIELD OF ORTHODONTIA.

BY RODRIGUES OTTOLENGUI, M. D. S., D. D. S., LL.D.

We speak now of orthodontia, and the practitioners in this field are specialists, calling themselves orthodontists. Less than a quarter of a century ago we heard mainly of the "irregularities of the teeth," and the work of "regulation" was a part of the routine practice of the dentist.

In what respect does orthodontia differ from the regulation of teeth, and to what extent is the dentist authorized to invade the field of orthodontia? I think both questions important just now, and that the latter is peculiarly pertinent, because, if the question be reversed so as to read: "To what extent may the orthodontist practice dentistry?" the majority of dentists would reply: "The orthodontist must not practice dentistry at all." Adding, perhaps, mentally, "If he does, he need not expect me to refer patients to him."

There is evidently, therefore, in the mind of the dentist a definite limit to the field of orthodontia, and it is but fair to consider the moral right of the dentist to cross the border line erected by himself.

The problem of the relation of orthodontia to the general practice of dentistry is quite analagous with the similar and much-discussed relation between dentistry and the general practice of medicine, with one difference: We have a degree in dentistry separate from the medical title; as yet we have no distinguishing degree for the orthodontist. He stands in the dental world just where the oculist, the rhinologist, and the gynecologist are found in the medical. This renders it easier to determine the ethical relations existing between this new specialty and the general dentist.

Two aspects greet us. In spite of the fact that there are separate dental colleges not only in America, but throughout the world, and a distinguishing diploma and degree, nevertheless, there are many, and always have been many, who have argued that the dentist should be a medical graduate. If there is any reason in the argument that the dentist should be primarily a physician, there is ten times as much need for the orthodontist to be a dentist. Yet, there be some who think that the future orthodontist should be made out of fledgling dental graduates. I respectfully submit it as my own view that the best orthodontist of the future, as in the past, must be forthcoming from the ranks of such men as begin in the regular practice of dentistry, and gradually choose to practice orthodontia exclusively from a pure love of the work, and especially because of their inherent love for and patience with children.

If this be true, it follows as a logical sequence that the dentist has the moral as well as the legal right to practice orthodontia; but he should have no legal right, as surely as he has no moral right, to undertake orthodontic work without a full and competent knowledge of the present requirements and technique. Any physician may treat the eye, the nose, the throat, or do any operation in surgery if he have the ability to do so successfully; but he may be mulcted in heavy damages, if he attempt such work and fail, because of lack of proper training or skill. The medical degree is no protection to the mal-practitioner.

It is the same in dentistry. Any dentist may undertake the treatment of malocclusion, but he is guilty of malpractice in some degree if he does not first acquire the needed training and knowledge.

The sphere of the dentist in orthodontia is, therefore, to be considered from a dual aspect. First, the general practitioner who elects to treat malocclusion occasionally, and, second, the dentist who decides to refer all such cases to a specialist. The first man should have exactly the same knowledge as the specialist himself. For, if a dentist treats but one case a year, he is morally bound to know how, or else refer the patient elsewhere. And this is the fundamental difference between a commercial transaction and a professional one. The ordinary man is supposed to be competent to protect himself when making a bargain or a trade. But the patient relies

entirely upon the word of the medical man or dentist, and the professional man who undertakes a case for a fee, knowing that he lacks the skill and experience to properly produce the best average result, is guilty of moral turpitude, which is exactly measured by the degree of his failure.

On the other hand, the general practitioner who decides not to treat malocclusion, but who elects to recommend a specialist, should at least inform himself sufficiently of the art to be a competent judge of the success or failure of the specialist into whose hands he takes the responsibility of placing the management of the teeth and jaws of a growing child. For, it should be remembered that there are degrees of excellence in all crafts, and the mere fact that a man may announce that he has decided to "restrict his practice to orthodontia" does not prove that he is competent. I fear that already some are entering this new field, attracted by imaginary large fees, rather than because of any real love of, or natural fitness for, the work.

With this understanding of the relation between orthodontia and dentistry, it is my intention tonight in a brief way to address myself to the dentists who are not intending to practice orthodontia, rather than to those who may be treating a few cases annually. The latter should either have, or else as quickly as possible should acquire, full knowledge of modern technique. To the former I will attempt to sketch out the present state of the art.

DIAGNOSIS IN ORTHODONTIA.

Diagnosis, which, of course, should be the first step in treatment, differs very greatly in the orthodontia of today from that of yesterday. And this may stand almost as an epigram, because, as the various problems are studied by real investigators who bring us new knowledge constantly, the yesterday in orthodontia is ever close behind us. The orthodontist must not be considered inconsistent who tells you one thing today and another tomorrow. He may, of course, be ignorant; but, then again, he may be progressive.

Not so very long ago the correction of irregularities was undertaken mainly for cosmetic purposes. The teeth which are visible when the lips are parted were noted to be "irregular," and the parent brought the child in to have these visibly "crooked" teeth "straightened."

To better comprehend this we should point out that crookedness really meant mal-alignment, and straightening included merely an alignment, this alignment being more particularly applied to the anterior teeth, and quite frequently to the teeth of the upper arch only.

Irregularities were looked upon mainly as falling into one of two classes. The teeth were either crowded, and therefore turned on their axis, or else the front teeth protruded, keeping the lips more or less apart.

Treatment was easily comprehended. The arches were to be widened, teeth rotated and prominence reduced. In this latter work it was occasionally discovered that the arches could not be sufficiently widened so that the upper prominence could be satisfactorily reduced, in which case a couple of bicuspid were often extracted, to "make room."

Etiology, in this not distant past, was quite as fully understood as treatment. Crowded arches were due to the fact that young lovers were inconsiderate enough to get married without first having their mouths and teeth measured and matched up. This, of course, showed no regard whatever for their possible offspring, and these married folks, mismated as to their dental organs, often brought babies into the world who later in life were compelled to suffer from a set of number nine teeth, inherited from Daddy, crowded into a number six jaw, a duplicate of Mammy's. Anterior prominences, of course, were but logical sequences of the pernicious habit of thumb-sucking.

So the dentists rotated teeth and widened jaws, and sometimes extracted teeth, all in order to more evenly align them, and to make the little patients, and especially little girls, prettier. And, of course, as the habits of refined society forbid the too wide opening of the mouth in conversation, it was useless to attempt treatment of the back teeth, "which never show anyhow."

Modern orthodontia, though probably still in a very primitive stage, compared with future possibilities, nevertheless has come to a truer comprehension of what should be the real purposes of the art. Treatment is no longer confined either to a mere alignment of the teeth, or to a beautification of the individual.

Diagnosis today means, first, a knowledge of occlusion; and,

secondly, a study in each case presented for treatment, of the departure from an ideal occlusion of every tooth in the mouth of that particular individual, because such departures constitute malocclusion; and the orthodontist of today is engaged in the treatment of malocclusion, and this treatment has for its aim the restoration of the whole masticating apparatus to the nearest possible approach to ideal occlusion. Such treatment involves something more than a mere alignment of teeth; it involves a restoration, as far as possible, of the typical arch form, and also of the typical occlusal plane, and this latter is often much the greater problem of the two. These two fundamental needs are further dependent upon a study of the possible mal-relations of the two arches, considered mesiodistally, and a like study of the possible mal-relations of the jaws themselves.

All this, perhaps, sounds rather complex, nor indeed is it very simple even for the expert. Nevertheless, Dr. Edward H. Angle brought order out of chaos, and made true diagnosis possible and comparatively simple when he presented his classification. Much has been written in criticism of this classification, but based, as it is, upon certain definite and irrefutable facts, there is little doubt that it will remain the foundation of diagnosis long after all his critics shall have passed into that realm where all arguments cease and all men are as brothers.

It follows then that all dentists should thoroughly familiarize themselves first with occlusion, and then with malocclusion. The dentist should not only be familiar with the general arrangement of teeth in normal occlusion, but he should know why each tooth occupies a definite place and a definite pose in the arch arrangement. Every tooth has a definite part to play, and to fully acquit itself of this function must occupy a stated place and position. Any departure is to that extent a malocclusion, and the individual is just to the same extent incapable of the most thorough mastication of his food. Upon the thorough mastication of food largely depends the proper nourishment of the body, and upon such complete nourishment depends the harmonious working of the whole organism and the ability of the individual to resist disease. The mouth, we are told, is the portal of the body through which pass both health or disease. Let me add that the teeth are the sentinels at the gates, and in proportion as they do their full duty so will the enemies enter or be repulsed.

I do not say that the dentist who is not intending to practice orthodontia should acquaint himself with the technique of the movement of the teeth. But, I do say this: He should be thoroughly competent to intelligently discuss the diagnosis of a case with even the most experienced specialist. I believe it would be eminently more satisfactory to many parents if the recommending dentist could be present and in consultation with the specialist at the time when the specialist explains his diagnosis and outlines the work which he hopes to accomplish.

The sphere of the dentist, then, is twofold. In cities where there is no specialist the dentist who elects to treat malocclusion should take post-graduate instruction in orthodontia, in order to give the children in his neighborhood the benefit of skilled attention.

Secondly, even in larger cities the dentist may practice orthodontia, provided first that he acquire proper knowledge of the three fundamental requirements: (a) Diagnosis; (b) Treatment; (c) Retention.

Lastly, all dentists should acquire sufficient knowledge of the present state of the art to enter into an intelligent consultation with a specialist.—*Items of Interest.*

IMPORTANT APHORISMS. APPLIED TO PLATE WORK.

BY L. P. HASKELL, CHICAGO.

DONT FORGET:

1. That plaster is always a reliable impression material.
2. That the more difficult the case to obtain an impression, the more necessary the plaster.
3. That the only portion of the upper jaw which never changes is the hard palate.
4. That unless provision is made for the settling of the alveolar ridge, it is only a question of time when the plate is resting and rocking on the palatal surface.
5. That the vacuum cavity is not at all needed to retain the plate, and, also, if used is sooner or later rocking the plate.
6. That the remedy, in a metal plate, is the covering of the

entire hard surface with a thin film of wax (the "relief"). In a vulcanite plate, scraping the impression.

7. That there is no necessity nor advantage in scraping the soft portions of the model in any case.

8. That vulcanite should not be used for permanent upper dentures, because of increased absorption in 80 per cent of mouths on account of retention of undue heat.

9. That the great number of cases of excessive absorption of the anterior portion of the upper jaw and soft ridge arises from this cause, but is greatly enhanced by undue pressure of the anterior teeth.

10. That the anterior teeth in full upper dentures should *never*, *never*, under any conditions, come in contact for the above reason, and also because the plate is displaced every time the jaws meet.

11. That the fitting of a metal plate is as easy as of a vulcanite, and in flat, ridgeless jaws better success is assured.

12. That a proper Babbitt metal die insures better success than zinc, because it has all of the five necessary qualities for a dental die; viz, non-shrinkage, will not batter, will not break, is smooth and melts at a low temperature.

13. That the melting temperature of the lead for counterdie must be reduced by the addition of tin, one part, to five of lead, and not poured as hot as it comes from the heater, but stirred until it begins to crystallize.

14. That aluminum makes an excellent substitute for vulcanite.

15. That in the question of the extraction of certain teeth, the only thing to be considered is what shall be done to make the artificial denture the most useful and comfortable.

16. That the retention of the cuspid teeth is unwise from every point of view, weakening the denture; the latter is not so easily retained, nor as useful.

17. That there is no necessity for retaining them, because they are practically useless, and the change in the features caused by their extraction is remedied by making the plate higher at those points and the artificial gum fullest.

18. That there are more failures from faulty occlusion than from any other cause.

19. That correct occlusion can better be secured by the use of the thick articulation paper than by any other means.

20. That in arranging the lower to an upper set, begin with the second bicuspid; then the first, so as to secure correct interlocking of cusps, for in nearly all full sets, of all makes, the anterior lower teeth are too wide for the uppers, and must be changed so as to come within their proper limits.

21. That in taking the "bite," if the tongue is turned back as far as possible the jaw cannot be moved forward.

22. The teeth should always be arranged by the mouth, as it is only there one can determine when they are correct, and also the patient should see them, so if any change is desired it can be made prior to completion.

23. That the numerous cases of flat, narrow, ridgeless lower jaws are the problem of the dentist.

24. That when the tongue is raised the glands and loose integuments rise above and drop over the margin of the jaw.

25. That in such cases, no matter what depth there is on the lingual side of the jaw, the plate should not be extended below the point where it is lifted by the glands, as it is constantly lifted, to the great annoyance of the wearer.

26. That a very common fault with artificial teeth in many mouths is they are too short, no attempt being made to restore the features.

27. That small, white or colorless teeth are too often used, and resemble a row of beans.

28. That the serious fault with all makes of teeth is found in the bicuspid and molars. The lingual cusps should be shorter than the buccal in the upper teeth, and as they are not, it is impossible to bring the buccal cusp into proper alignment without much grinding of the lingual.

29. That the pins, even in long teeth, are too near the cusp when it has to be ground nearly all away, whereas the pins should be lowered, allowing more porcelain and, also, shorter cusps.

30. That too many bicuspid and molars are so narrow and thin there is little surface for mastication.

31. That the continuous gum denture remains, after nearly fifty-eight years, the only ideal artificial denture in all respects.

32. That the prominent upper jaw and short lip absolutely require this work to fulfill all the requirements of the case.

33. That nothing else in prosthesis gives such scope for artistic work, and yet much of it is a disgrace to the maker.

34. That there are seven distinct peculiarities of the left side of the mouth, seldom seen on the right, all of which have to do with the arrangement of the teeth and contouring of the gums.—(*Dental Digest.*)

DENTAL DERANGEMENTS—CONTRIBUTORY TO TUBERCULOSIS.*

BY B. J. CIGRAND, M. S., D. D. S., CHICAGO, ILL.

When the scholar and investigator, Leeuwenhoek, of Holland, announced late in 1578, that the air and all material things were filled with minute living organisms, he astonished the world. But when he, while in company with some intimate friends, chanced to meet a tramp-like vagrant, and upon passing the illy kempt and neglected human specimen, remarked "that there are more minute living things in that beggar's mouth than there are people in all Holland," his companions questioned his sanity. Time has demonstrated that the famous Dutchman was correct, and generations since his time have learned the purpose and destiny of this micro-organism. He had the courage to announce his findings, which demanded in those days a fortitude akin to a willingness to die at the stake or be placed behind huge locks and cold bars of iron. There has arisen from his discoveries more debate and more investigation than from an physiological disclosure since the dawn of time. He introduced us to a new phase of life, and acquainted us with the value of an animate creation whose numbers—like the sands of the sea or the leaves of the forest—are beyond the capacity of our mathematical skill to record.

Clearly as may be the mouths of the distinguished hearers of my paper, the infinitesimal life present in the oral cavity of us here assembled measure more millions than there are people in all our country. Some of the minute organisms are not only harmless, but necessary in our continuance of life. They aid in a thousand ways to stimulate the secretions and assist in the processes of both waste and repair; but there are other micro-organisms within our mouths whose

*Read before the Southwestern Michigan Dental Society, April, 1909.

presence are indeed threatening and whose lodgment a damage to both our mental and physical well being.

The world today is intensely interested in these low forms of life, in these distantly related companions of our daily life. We have so carefully studied into their existence that we have classified these thousand different varieties and today know them by as distinct a name as is the optically recognized horse, dog, tiger, bear and wild-cat. The investigators know their habits as thoroughly as we know that of the fox, deer or squirrel; we as completely comprehend where they can be found and upon what they thrive as does the fisher where the perch, the bass or pickerel can be found. All this is true scientific record; there is little guess about it. The facts are recognized, not alone in American laboratories, but as thoroughly understood in foreign rooms of investigation. Now the special kind of low forms of life in which I shall be concerned this day are the tubercle bacilli of the human mouth. I shall show, more conclusively, than I did at the national meeting at Buffalo, New York, in 1904, that the dentist more than any other scientist must be familiar with this subject and that he has equal rights with the physician in this public concern. We have great cause to be interested in the theme; we are by law made the guardians of the mouth—the portal to human existence.

We of today know the exciting cause, but the disease, consumption or tuberculosis, was known thousands of years ago.

The ancient Greeks wondered, five centuries before Christ, when Hippocrates wrote that "phthisis is the greatest and most cruel disease, and the one that kills the greatest number of people." The Bible tells of its ravages. In Deuteronomy xxviii, 21, 22, it is written: "The Lord shall make the pestilence cleave unto thee, until He shall have consumed thee from off the land. The Lord shall smite thee with a consumption and with a fever and with an inflammation and with an extreme burning." If one is asked where the first case came from, one can reply, "where did the first man come from?" If one believes in our simian ancestry, it may seem to him significant that monkeys are especially susceptible to tuberculosis.

Today a phrase echoes in the larger cities from the Atlantic to the Pacific: "Tuberculosis is communicable, curable, preventable."

Tuberculosis is a communicable disease. One person may catch it from another—but only in limited ways. Scarlet fever we catch

from scales, typhoid we catch from bad sewage disposal and polluted water. Measles is communicated through the air; malaria by the bites of disease-bearing mosquitoes. Tuberculosis is communicated by the germ from the consumptive's sputum.

How communicable is consumption? Ask a man of the last generation of what disease he was most afraid. He will say: "Smallpox, diphtheria, typhus, cholera, scarlet fever. We stood in fear of epidemics." Yet what do the figures of the New York State Board of Health for 1907 show, the figures of a single state? That tuberculosis, with 14,906 deaths charged against it in the State of New York, claimed, in 1907, more than twice as many victims as diphtheria (2,372 deaths), typhoid (1,608 deaths), scarlet fever (1,029 deaths), measles (995 deaths), and smallpox (10 deaths), *combined*.

But the lungs are a specially favored battle-ground for the tubercle bacillus. Passing the outlying stockades of the stiff hairs of the nose (for we ought to breathe through our noses), he runs the blockade of the glands in the throat and the army of little hair-like arms in the windpipe. He gets past the tiny, trap-like mouths that try to suck him in and to eject him again from the throat. If the enemy gains entrance into the lungs, he begins to build his bulb-like fortress. The word "tuberculosis" comes from the Latin "tuber," a bulb.

These lumps in the lungs are the stronghold of the enemy. In them the single soldiers becomes a million soldiers. In time, if unconquered, they break through the fortress, the tubercle lump bursts, the germs by millions rush through the system, a cavity forms in the lungs where the hostile fortress was—and the victim is so much nearer death. The billion germs seek other centers of implantation, eventually other hostile fortresses rise, now in greater number. Still later, they too, give forth their deadly armies, and as their poisonous, consuming effects become more visible, the victim is seen to have consumption.

1. DR. W. F. KELSEY, of Marseilles, France, says:

"Even a healthy mouth is a hotbed of bacterial flora; then what a field for microscopic investigation must be presented by that of a phthical patient. 2. Miller estimated that a typical unhealthy mouth which he examined contained upwards of a thousand millions of cultural bacteria. With every mouthful of food swallowed, myriads of these germs are carried into the already inflamed alimentary canal.

The gastric juice being unequal to the task of annihilating this vast army of invaders, in whose ranks are enrolled, micrococci, staphylococci, pneumococci and even the baccillæ of Koch, a secondary infection naturally ensues that aggravates all the morbid symptoms which were the original characteristics of the disease.

3. DR. DODD says:

"Whatever may be said of the septic infection taking place through the mouth and teeth, there is no doubt as to the existence of secondary anemia, associated with lowered vitality and great foulness of the whole alimentary tract, resulting directly from buccal infection." Aside from teeth of feeble resistance, annoying ulcerations of the tongue, of tuberculous origin, are not infrequently met with. A distinctive feature of these ulcerations is that they are surrounded by yellowish dots, easily mistaken for follicular orifices, though in reality they are but minute abscesses which gradually coalesce with the principal ulcer. They are of slow development, partaking in this respect of the characteristics of tuberculosis itself. Except for the greyish surface and yellowish spots, one might readily mistake them for syphilitic chancres though unlike the latter they are rarely the cause of glandular swelling.

One should insist upon the desirability of choosing food that contains a large percentage of lime salt, and which at the same time will fortify the teeth by the effort of mastication. Ferrier maintains that not only the bones and teeth be hardened by diet, but the calcification extends to the other tissues and contributes materially to the cicatrization of the tubercles. Oatmeal, stale or toasted bread, rice and eggs with calcareous or mineral water, or even lime water can be prescribed. It is equally important to indicate what should not be eaten or drank. Honey, sweets, vinegar, rich sauces, acid fruits, cider and even milk in considerable quantities should be avoided.

Dr. Kelsey also comments recently on our own dangers. "Whilst operating on tuberculous patients we incur a certain risk of infection that should not be ignored, as the baccilli of Koch is invariably present and at any unforeseen moment we are liable to be inoculated with the poison. Fortunately the majority of mankind is more or less refractory to the virus and with due attention to antiseptics the danger, if not entirely averted, can at least be reduced to a strict minimum.

I would add that we must be better protected against patients

breathing and our hands must be ever kept in mind. My greatest surprise is that we, who are exposed to so many dangerous diseases of the mouth—that we live as long as we do.

A Mr. Lewis, who has studied the likelihood of consumption, directs our attention to the danger. Why is it that six marble-cutters or stone-cutters die to every banker, broker or company official? Is not the inhaled dust a principal cause? Cigarmakers are very prone to consumption; tobacco is irritating upon the mucous membrane, whose duty it is to be healthy and to intercept the tuberculosis germ in its passage toward the lungs. Bad air, long hours, unsanitary conditions play their part in all workshops where such disease-producing conditions are allowed to exist—the dentist and the confined official. Wherever labor is accompanied by conditions tending to produce ill-health, there the tuberculosis germ laughs with glee and lurks in the corner. He is a good waiter.

The great army of people infected from tuberculosis range between the ages of 15 and 35, while the origin and aggravating causes are subjects of great dispute; it is, nevertheless, conceded that certain predisposed conditions produce symptoms which are universally indicative of tuberculosis; while the conditions of the mouth have escaped the critical attention of the medical scientist it is, nevertheless, deserving of consideration in that many ailments, we have physical and mental, trace their origin to disorders of the teeth. We have been and are this day and generation giving too little attention to proper manducation and mastication, and observation should teach us that the primary requisites of good health are a properly organized and hygienic masticatory apparatus. In this connection the function of saliva must not be underestimated. Our hasty meals and hurried manner of eating that brings about circumstances that may be the initial cause of tubercular progress. The saliva is an essential inter-medium to proper digestion, and if the latter be impaired there can certainly not be normal assimilation unless our foods are thoroughly insalivated while in the mouth, the further preparation of our edibles for the important transformation into blood has been impaired; this interference must, of necessity, beget impoverished circulation.

Nature requires that the food shall be crushed and pulverized by the teeth, and softened and chemically changed and prepared by the saliva, and when these two processes are accomplished, the food

is ready for the stomach. The present prepared foods do not beget jaw action, hence I contend do not receive the proper amount of parotid saliva and the foods lacking this pre-stomachic treatment must of necessity lack in the blood-producing elements. The mischief of this poorly prepared morsel may be one of the prevailing ailments of dyspeptics, and may also be conducive to the ravaging increase of consumption. Tuberculosis makes great headway in any system that is exhausted; in any person whose vitality is low; in any individual whose energy is lessened through impoverished blood. The action of the jaw being omitted, the flow of the parotid saliva is scant, the food morsel improperly prepared, digestion disturbed, the blood impoverished, and hence with the organic and systemic energy tuberculosis, pyemia and all consuming diseases readily progress. All this destruction of human life has been aided, not induced, by disregard of the cardinal principle of digestion, by our present methods of hasty eating, giving neither thought nor time to the process of mastication and mastication—the human or civilized species disregarding nature's greatest and most divine requirement—digestion.

The most astonishing feature relative to the causes of tuberculosis lies in abnormal conditions of the mouth; the large cavities filled with indescribable debris certainly tend to disarrange the entire digestive system. The conditions of these cavities when carefully examined under a microscope give evidence of a most prolific micro-organic life. These cavities hidden away from the access of a toothbrush are splendid harbors for the generation of tuberculosis. Nowhere in the entire human economy could you find a more congenial habitation for the germs of tuberculosis than in the deep-seated cavities of teeth while they possess the three requisites to give assurance to their reproduction—namely: heat, moisture and oxygen.

Another element in a deranged mouth which adds to the likelihood of consumptive possibilities is the ulcerated tooth; belching forth pathogenic fluid called pus. This virulent matter seeping from the gums finds its way to the stomach easily, while this presence so unwelcome to the gastric glands prevents a proper gastric bath to the foods which lie within the walls of the stomach. Nor is the presence of the pus limited to the stomach alone, but follows the entire alimentary tract, endangering the entire system and digestion and eventually bringing about poisoned conditions of the entire human

fabric; having thus undermined the circulatory system the feeble emaciated and degenerated being falls easy prey to the tubercular bacilli, whose attack cannot be withstood because of the lack of human vigor and cell-energy. Another important attribute of robust health demands that the mouth be in a positive sanitary condition, the so-called pyorrhea alveolaris or the wasting away of the alveolar ridge which contain the teeth and in this process the pus germs are fully as dangerous to health as the ulcerated dental organs. There are innumerable conditions of the mouth which yields pus, as a result that in all of these dental disturbances which inaugurate this poisonous matter must be relieved and cured or the pus upon being swallowed will invite the white plague—consumption.

The bacillus of tuberculosis is present and doing mischief in many mouths which have had so-called dental attention. The average cement filling is a porous material with caverns large enough for a conglomerated mass of putrid vegetable and animal debris to lodge. Within this apparently well fitting cement filling there is a splendid shelter for myriads of bacilli to colonize, hence the large cement filling is not a safeguard against bacterial generation, because of its sponge-like porosity. The amalgam fillings share a like objection, but not because of its porosity, but because of its general change ability. The mass of amalgam shortly after hardening, shrinks, allowing its circumference a wide gap between its border and the walls of the cavity. In this circular opening clogged with the fluids of the mouth and disintegrating matter of bacilli, tuberculosis again finds a happy shelter. Gutta-percha so frequently employed by some of the practitioners is absolutely unreliable as a means of excluding tubercular matter. My own personal tests of the cement, gutta-percha, and amalgam fillings lead me to the belief that the gold leaf filling, the porcelain and gold inlay are the only fillings giving promise of tubercular exclusion; and though the inlay fillings are held in position by a thin film of cement, it, nevertheless, does not possess bulk, and hence must necessarily be more assuring in its sealing properties.

The barbaric fashion of prodding the teeth with cheap wooden toothpicks, from whose sides bristle forth infinitesimal splinters, inaugurate inflammation of the gums besides causing openings between the teeth which should be tightly filled with gum tissue. The gums are filled with broken bits of wooden slivers and the opening created

becomes filled with decay as disintegrating masses of food stuff and in this convenient habitation we have again erected a temple to the Goddess of Tuberculosis. Last and far from least is the part the practitioner plays in spreading this dreadful life destroying disease. The ethical practitioners of dentistry are constantly taught at the Society of Communion the essential and all important subject of hand and instrument sanitation. The reckless dentist who is disregarding of the cleanliness of his digits and who is unmindful of the disinfection of instruments, is a menace to the community. I could imagine no more certain way of spreading the disease of tuberculosis than by advocating indifference of finger and instrument cleanliness. It would almost seem to me within the province of the department of health to examine into the practice of all dentists and where the investigation positively demonstrated the disregard for cleanliness of hand and instrument a temporary revocation of his license might remind him of the teachings he received while at college pertaining to the subject of "Office Hygiene." This rigid enforcement of compelling practitioners to disinfect their hands and dental instruments would not only be a safeguard against the spread of tuberculosis especially but would be the means of preventing contagion of many other ravaging human disorders.

In dentistry the supposedly simplest of all operations, namely, that of cleaning the teeth, is often productive of serious and injurious results, and not infrequently a patient presents a single tooth possessing pyorrhea pockets. The thoughtless and careless operator dipping excavators in these pockets proceeds to the adjoining healthy teeth. In less than 90 days he has by this reckless attention inoculated the entire gums with pathogenic life whose ravenous appetite for human tissues is beyond the description of any scientist. The proper cleaning or purging of the teeth is essentially one of the most delicate and painstaking procedures in the art and science of dentistry. Peculiarly enough, there is a strange coincidence between the raging of tuberculosis and the raging of dental decay, both diseases or ailments having periods of cessation; hence the human body seems immune to every attack. Both of these agencies flourish pre-eminently between the ages of 13 and 36. Dental decay in the major number of cases practically disappears as does tuberculosis as age creeps on. Hence the importance of looking into the welfare of those who are entering

the prime of life. This nation, quite contrary to the estimation of President Roosevelt, is not suffering from a lack of birthdays so much as it is from a lack of celebrating birth anniversaries. We have a great birth rate in the United States, but coupled with it is an overwhelming death rate of child and juvenile. Save the children that are born and we need have no fear for the depopulation of the land. Let the central government at Washington, the governments at State capitals and municipal governments spend one-half as much money on preventing as they now expend on the cure and our country as a whole will have attained a physical perfection which will redound to the endurance of the republic.—(*Dental Summary.*)



IOWA STATE DENTAL SOCIETY.

The forty-eighth annual meeting of the Iowa State Dental Society will be held at Des Moines, May 3-4-5, 1910. Besides an especially strong program, plans are being made for a large dental manufactures' exhibit. Display space free of charge.

W. G. CRANDALL, Secretary,
Spencer, Iowa.

MONTANA STATE DENTAL SOCIETY.

I am pleased to announce that the next annual meeting of the Montana State Dental Society will be held May 6-7, 1910, in the city of Great Falls, Montana. Preparations are making for a good program and the indications are that it will be the best meeting of the sort that the profession of the state has ever held.

Sincerely,
DR. R. L. SPAULDING, Secy.-Treas.

MISSOURI STATE DENTAL ASSOCIATION.

The forty-fifth annual meeting of the Missouri State Dental Association will convene in St. Louis, May 23, 24, 25 and 26, 1910. This meeting is going to be an epoch in the history of the Missouri Dental Association, the committee on reorganization will have completed their work by that time and as a result the attendance will be double that of former years. Drs. G. V. Black and J. V. Conzett will be guests of the association, besides the clinics alone will be the largest ever given at this association.

J. F. WALLACE, *Secretary*,
Canton, Mo.

KENTUCKY STATE DENTAL ASSOCIATION.

The forty-first annual meeting of the Kentucky State Dental Association will be held in Louisville, May 26, 27, 28, 1910.

An unusually interesting and profitable program is being arranged for this year, and a cordial invitation is extended to all ethical members of the profession.

W. M. Randall, secretary, corner Brook and Broadway, Louisville, Ky.

ALUMNI ASSOCIATION OF THE COLLEGE OF DENTISTRY.

The Alumni Association of the College of Dentistry, University of Illinois, will hold their third annual clinic and meeting on Wednesday, June 1, in the college building, corner Harrison and Honore streets. This will be a strictly alumni clinic but a cordial invitation is extended to ethical members of the profession to attend the clinics.

FRANK J. RYAN, Secretary.

THE MICHIGAN STATE BOARD OF DENTAL EXAMINERS.

The next regular meeting of the Michigan State Board of Dental Examiners for the examination of applicants for registration will be held at Ann Arbor, beginning Monday, June 20, and continuing through to the twenty-fifth. Application must be in the hands of the secretary at least fourteen days before the examination, and should be addressed to A. W. Haidle, secretary-treasurer, Negaunee, Mich.

INDIANA STATE DENTAL ASSOCIATION.

The fifty-second annual meeting of the Indiana State Dental Association will be held in Indianapolis, May 17-18-19, 1910, at the Claypool Hotel. This promises to be a great meeting.

Huntington, Ind.

OTTO U. KING, Secretary.

THE NATIONAL ASSOCIATION OF DENTAL EXAMINERS.

The twenty-eighth annual session of the National Association of Dental Examiners will meet at the New Savoy Hotel, Denver, Colorado, commencing Monday, July 25, at 10:00 a. m. The rates will be \$2.00 per day for one and \$3.00 per day for two persons in room, European plan; large room for one or two with private bath \$4.00 and \$5.00 per day.

Meeting and Committee rooms at the service of the association free and every accommodation extended. An early mail reservation is requested, the time being the busy season. A full representation from every state in the United States is desired.

J. J. Wright, D. D. S., president, Wells building, Milwaukee, Wis.; Charles A. Meeker, D. D. S., secretary, 29 Fulton street, Newark, N. J.

NEW YORK ALUMNI ASSOCIATION, XI PSI PHI FRATERNITY.

The annual dinner of the New York Alumni Association, Xi Psi Phi Fraternity will be held at the Hotel Manhattan, Madison avenue and Forty-second street, New York City at 8:00 p. m. on Saturday, April 2, 1910. Arrangements have been made for every Alumnus residing in or about New York City, and it is hoped that all will take advantage of this opportunity to meet their old classmates again.

MONTANA STATE DENTAL SOCIETY.

The meeting of the Montana State Dental Society will be held in Great Falls, May 6th and 7th, and that Dr. J. H. Prothero, of Chicago, and Dr. J. W. Ritter, of Charlestown, Illinois, will give clinics.

W. H. BARTH,

Chairman Executive Committee.

TENNESSEE STATE DENTAL ASSOCIATION.

The Tennessee State Dental Association begs to announce they will hold their forty-third annual meeting, May 17-18-19, 1910, at Nashville, Tenn., and all ethical practitioners are invited to attend.

Yours very truly,

J. S. MANIRE, Sec.

IOWA BOARD OF DENTAL EXAMINERS.

The Iowa State Board of Dental Examiners will hold a meeting for the examination of candidates for license to practice dentistry in Iowa, beginning June 6, 1910, at 9 a. m., at Iowa City.

For blanks and other information, write

E. D. BROWER, Sec'y, Le Mars, Iowa.

MISSOURI STATE DENTAL ASSOCIATION.

The forty-fifth meeting of the Missouri State Dental Association will be held in St. Louis, May 23, 24, 25 and 26, 1910. This, the "Reorganization" meeting, promises to be the greatest meeting in the history of this association. Drs. G. V. Black and I. V. Conzett will be the special guests of the society.

All ethical members of the profession are invited.

F. W. PATTERSON,
Corresponding Secretary.

INDIANA STATE BOARD OF DENTAL EXAMINERS.

The next meeting of the Indiana State Board of Dental Examiners will be held in the capitol, Indianapolis, beginning Monday, June 13th, and continuing for four days. All applicants for registration in the state will be examined at this time.

No other meeting will be held until January, 1911.

For further information, apply to the Secretary,

F. R. HENSHAW,
507-8 Pythian Building, Indianapolis.

ILLINOIS STATE DENTAL SOCIETY.

The forty-sixth annual meeting of the Illinois State Dental Society will be held in Springfield, May 17, 18, 19, 20, 1910. In addition to an especially good list of essays and clinics, an unusually attractive supply exhibit is being planned. J. F. F. Waltz, Secretary, Decatur, Ill.

Dr. J. S. Casper

Whereas, the Supreme Ruler of the universe in his infinite wisdom saw fit to remove from our midst (on February 12th) our professional brother Dr. J. S. Casper;

Whereas, we humbly bow in submission to the wisdom and will of Him who doeth all things well,

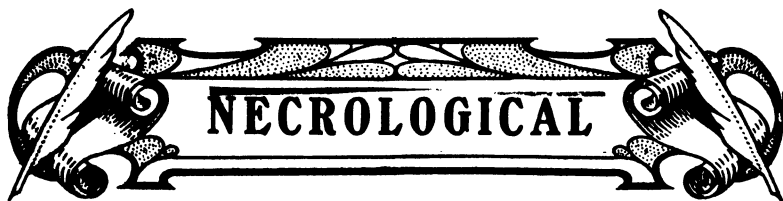
We respectfully submit the following resolutions:

Resolved, that Dr. Casper did exemplify by his acts in his life the truest principles of noble manhood, that he was an honor to his chosen profession, careful, cautious, efficient and wise in the performance of his duty, looking to the best interests of humanity, ever ready and willing to the extent of his ability to aid his fellowman in distress.

Resolved, that a copy of these resolutions be spread upon the minutes of the Southwestern Dental Association book, a copy sent to his family and copies sent to the Texas Dental Journal, Practical Dental Journal, American Dental Journal and the Dental Summary.

J. W. Smith
J. D. Simms
W. R. Weber

Committee.



NECROLOGICAL

Dr. J. Y. Crawford, of Nashville, Tenn., died Wednesday, April 6. The Doctor was 63 years old and the only Southern man ever elected President of the American Dental Association.

Dr. James W. Curtis, one of the best known dentists in Maine, died at his home in Brunswick March 30. He is survived by a widow and one son.

Dr. James Marple, of Sherrard, W. Va., died at his home Thursday, March 31. He was 45 years of age and unmarried.

Dr. Justus Crane Burroughs died at his home in Bedford, Ohio, March 31. Dr. Burroughs was a member of the first class graduated from Western Reserve University and the discoverer of the process of making false teeth on a hard rubber plate. He was born in Shalersville, Ohio, but later moved to Oshkosk, Wis., where he made his discovery of the process of vulcanizing rubber. The Doctor was 86 years old and is survived by one son.

Dr. James Gregory Palmer, a practicing dentist in New York City, died at his home March 29. Death was due to heart disease. He is survived by a wife and one son.

Dr. William Decker, pioneer dentist of the Lower Fox River Valley, died at his home in Oshkosh, Wis., March 25. Death was due to paralysis. Dr. Decker was 84 years old. He was a Democrat, a liberal man and a charter member of the Elks.

Dr. Charles Meyers, a practicing dentist of Little Rock, Ark., died March 19, at Hot Springs, where he was treating for rheumatism. Death was caused by pneumonia. He was 32 years old and is survived by a wife and one child.

Dr. Albert J. Sawyer, for many years a practicing dentist in Cambridge, Mass., died at his home, March 19. Death was due to pneumonia. He is survived by a widow, one daughter and two sons, Arthur H. and Dr. Frederick A. Sawyer of Arlington.

Dr. C. A. Isham, a practicing dentist in Minneapolis, Minn., died at his home March 14 after an illness of but two days. He leaves a wife and one child.

Dr. J. J. Cornelius, a practicing dentist in Chicago, Ill., for the past twenty years, died at his home March 19 from blood poisoning, due, according to the attending physician, from contact with an ulcerated tooth. The Doctor was 57 years old.

Dr. Herbert H. Dodson, a practicing dentist in Mexico, N. Y., died at his home March 24 of pneumonia after an illness of two weeks. He was 70 years old and practiced in this village since 1866 until the last few years. For the past ten years he carried on a jewelry and watch business. He is survived by a widow and one daughter. He was a member of Lodge No. 136, F. & A. M., having received the 32d degree.

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FOR SALE—Ethical practice and office outfit. Established four years. All strictly modern, associated with M. D., reasonable rent, good location, reason for selling, going into another business. Beloit, Wis., inhabitants 18,000, 92 miles from Chicago. Address "P. K.," care American Dental Journal, 39 State street, Chicago.

FOR SALE—Or will exchange, dental practice located North side, Chicago, for practice in Texas. Will sell at \$500.00. Address "Rix," care of American Dental Journal.

FOR SALE—Hurd gas outfit. First class condition, \$15.00. One S. S. W. Wilkerson leg base chair, arm bracket and cuspidor included, \$35.00. Write for further particulars if interested. Address "E. L. S.," care American Dental Journal.

FOR SALE—\$95.00 Ransom & Randolph Cabinet, No. 38. All refinished. Price, \$50.00. Also many other bargains in cabinets. Full particulars if interested. Address, "B. J. H.," care of American Dental Journal.

FOR SALE—3,000 Brewster porcelain crowns, good shades and molds, centrals, laterals and cuspid and bi-cuspid. Not less than 100 sold at a time. Price, 5 cents each. The Ross Dental Manufacturing Company.

FOR SALE—600 Logan crowns; all good molds and shades; will sell fifty at a time. Price, 40 cents each. The Ross Dental Manufacturing Company.

FOR SALE—Dental office and practice, established four years. Favorite Columbia Chair, Fountain Cuspidor, Clark R. & R. Cabinet, cost \$85, Hurd Gas outfit, Full Laboratory outfit and reception room furniture. Average receipts, \$275.00 per month. Price, \$700.00. Address "B. J. B.," care of American Dental Journal.

FOR SALE—Dental office in town of 10,000, in Nebraska. Ethical practice, \$3,000 per year. Price, \$1,000. Will give terms. Address "Walk," care American Dental Journal.

FOR SALE—Gasometer tank, iron stand complete with tubing and inhaler, ready to use. How much? Address "S. M.," care of American Dental Journal.

WANTED—A-1 Prosthetic man, also first class operator. Ethical practice. Fine city and climate. Opportunity for right man. Address "Texas," care of American Dental Journal.

FOR SALE—Columbia Chair. Good condition, upholstered in leather. Price, \$70.00. Address "G. M.," care of American Dental Journal.

FOR SALE—S. S. White disk base, Wilkerson chair, newly upholstered in either leather or plush, \$60.00. "J. B. D.," care of American Dental Journal.

FOR SALE—Browning motor lathe, direct current. This is a bargain. \$12.50. "J. O. K.," care of American Dental Journal.

FOR SALE—Ritter alternating current electric cable engine. In first-class condition, having just been overhauled by the Ritter Company. New cord. Price, complete, with handpiece, \$85. Address "Electric," care American Dental Journal.

WANTED—A good all around laboratory man. Will pay a good salary to the right man. Address "Laboratory," care American Dental Journal.

FOR SALE—Ethical practice and office outfit, in loop district, Chicago. Established fifteen years. Five year lease, reasonable rent, good location; leaving city. "E. G. T.," care of American Dental Journal, 39 State St., Chicago.

FOR SALE—Office and furniture in good Chicago location. Ritter Electric Engine and Lathe, Clark D. B. Fountain Cuspidor, Chair. All modern. Practice established for ten years. Possession June 1st, 1910. Price, \$500.00, cash. American Dental Journal.

FOR SALE—I am going to retire from practice, I have a good outfit in a fine location that I will sell on easy terms at invoice to right party. Have been in practice eighteen years and can swing a large amount of business to buyer. Address "X," American Dental Journal, Chicago.

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